

Remarks

In the Office Action, claims 2-4, 9, and 15 were allowed, and claims 1, 10 and 12 were rejected. In this response, claim 10 has been canceled without prejudice or disclaimer. Various claims have been amended. Additionally, the Applicant has taken this opportunity to add claims 16-26. The subject matter for the amendments and added claims may be found throughout the originally filed specification, claims, and figures, and therefore, no new matter has been introduced. The Applicant respectfully submits the claims are in condition for allowance.

Claim Rejections – 35 U.S.C. § 103

Claims 1, 10, and 12

These claims were rejected under 35 U.S.C. § 103(a) in view of Link et al. (USP 5,526,164) (“Link”) and Walker (USP 5,889,802) (“Walker”). Preliminarily, the Applicant notes that claim 10 has been canceled without prejudice or disclaimer, thereby rendering its rejection moot. With regard to claims 1 and 12, the Applicant has taken the opportunity to clarify various aspects of the claims and asserts that they are allowable over the prior art of record for at least the following reasons:

Claim 1 currently recites:

A method for controlling a light emitting device, the method comprising:
modulating an input of a light emitting device with both a test signal and a data signal to produce a modulated optical output signal, wherein the test signal is a sinusoidal noise-level test signal;
acquiring the modulated optical output signal from the light emitting device;
extracting the test signal from the acquired modulated optical output signal;
digitally processing the extracted test signal to calculate one or more power control adjustments; and
controlling output power of the light emitting device by applying the calculated power control adjustments to the light emitting device.

Therefore, claim 1 recites, among other things, “the test signal is a sinusoidal noise-level test signal,” “extracting the test signal,” and “digitally processing the extracted test signal to calculate one or more power control adjustments.” These recitations are neither taught nor suggested by Link or Walker, either independently or in combination.

In the Office Action, the Examiner relied on Link to teach the use of a test signal (i.e., pilot signal) to calculate various power control adjustments, and Walker merely for its teachings related to lock-in detection. The Applicant respectfully submits that the pilot signal of Link would never be construed by one of ordinary skill in the art to teach or suggest “a sinusoidal noise-level test signal.”

Link teaches that a pulsed pilot signal (i.e., the test signal) is mixed with a data signal and transmitted via a laser. After transmission, the pilot signal is extracted from the received signal via a photodiode, a band-pass filter, and a demodulator. The Examiner asserted that because Link teaches the pilot signal having a level that is very low in comparison with the level of the data signal, it teaches or suggests a test signal commensurate with a system noise level. The Applicant respectfully asserts that in light of the current amendments, Link cannot be said to teach a test signal that is a noise-level test signal. One of ordinary skill in the art would readily understand that a noise-level pilot signal could not be recovered merely through the use of a photodiode, a band-pass filter, and a demodulator. Rather, the pilot signal would be lost, or alternatively, filtered out with the unwanted system noise.

Furthermore, such an interpretation would be contrary to the teachings of Link and tone signals in general. While tone signals operate at levels much lower than their corresponding data signals, they must still be distinguishable from the noise floor to function properly. As is well known in the art, the purpose of a tone signal is to provide an output signal that can be sensed by the power control feedback loop (i.e., the photodiode and various filters). One of ordinary skill in the art would readily understand such a signal to require a level above the noise floor, and consequently, not a noise-level signal. This is illustrated by the mere use of filters to recover the pilot signal. For at least these reasons, the Applicant submits that claim 1 is allowable over Link.

Walker fails to cure the deficiencies of Link. Walker is merely cited for its teachings related to a lock-in detector. There is simply no teaching or suggestion within Walker of an output from a light emitting device including a noise-level test signal. Consequently, when Link is viewed in combination with Walker, they still fail to teach or fairly suggest the recitations of claim 1. For at least these reasons, claim 1 is allowable over the prior art of record.

Claim Rejections – 35 U.S.C. §103

Claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Levin et al. (US 4,994,675 A) in view of Walker.

Claim 12 has been amended to include generally similar recitations to that of claim 1. Levin, similar to Link, fails to teach or suggest the use of a noise-level test signal. Rather, Levin is directed to an apparatus for checking continuity of fiber optic links from a source to a receiver. Levin teaches the transmission of a test signal (“XX test signal”) “at a power level which is lower than that required for transmitting information.” The power level for the test signal is lowered as a precautionary step to prevent careless or uninformed personnel from suffering eye damage from the light-wave output where the fiber optic link is open. There is simply no teaching or suggestion that this test signal is a noise-level test signal, and further, one of ordinary skill in the art would readily understand that while transmitted at a lower power, the signal must still convey useful information which would consequently require the power to be above the system noise. Therefore, claim 12 includes recitations neither taught nor suggested by Levin.

As stated previously, Walker fails to cure at least this deficiency. Therefore, when Levin is viewed either alone or in combination with Walker, the prior art still fails to teach or suggest the recitations of claim 12. Consequently, the Applicant submits that claim 12 is allowable over the prior art of record.

Claim 9

The Applicant notes that while claim 9 was previously found to be allowable, it included recitations not needed for purposes of patentability. Consequently, the Applicant has amended the claim to remove needless features. The claim, however, does include generally similar recitations to those of claim 1 and 12, and therefore, is allowable over the prior art of record for at least the same reasons.

New Claims

Claims 16-26 have been added and depend from either independent claim 1 or 9, thereby incorporating their recitations. Therefore, for at least the same reasons that claims 1 and 9 are allowable, claims 16-26 are similarly allowable. Additionally, claims 16-26 include recitations that are further patentable over the prior art of record. For example, claims 18 and 23 include the generally similar recitation that the test signal is a gradually increasing sawtooth function. Link, Levin, and Walker all fail to teach or fairly suggest such a recitation. Other claims include recitations related to various DSP algorithms, and components used to facilitate extraction of the test signal. Such features are neither taught nor suggested by the prior art of record.

Conclusion

Applicant submits all the claims in the present application, specifically claims 1-4, 9, 12, and 15-26 are in condition for allowance. A Notice of Allowance is respectfully requested.

If there are any questions, the Examiner is invited to contact the undersigned at (503) 796-2408. Also, the Commissioner is hereby authorized to charge shortages or credit overpayments to Deposit Account No. 500393.

Respectfully submitted,
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Dated: March 9, 2009

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